

REMARKS

Applicant has carefully considered this application in connection with the Examiner's Action and respectfully requests reconsideration of this application in view of the foregoing amendment and the following remarks.

Claims 1-9 and 22 are pending in this application. Claims 10-21 have been canceled, Claim 9 has been amended, and Claim 22 has been added. Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned **"VERSION WITH MARKINGS TO SHOW CHANGES MADE."** Formal Drawings are also attached.

Drawing Objection

Entry of the attached Formal Drawings (pages 1-2, figures 1, 2A and 2B) is respectfully requested.

IN THE CLAIMS

Claims 7-21 were renumbers by the Examiner. It appears that page 20 of the original application was not received by the Examiner (page 20 included claims 7-10). Thus, the remaining original claims (claims 11-25) were renumbered by the Examiner as claims 7-21 as though original claims 7-10 were never submitted.

Allowable Subject Matter Indication

The indication of allowable subject matter is greatly appreciated. The Office Action states that Claims 1-8 are allowable. The Office Action further states that Claim 15 would be allowable if rewritten to overcome the objection because of informalities and the rejection under U.S.C. 112, second paragraph, set forth in the Office Action, and to include all of the limitations of the base claim (claim 9) and intervening claims (claims 10-14). Applicant has amended Claim 9 to include those limitations. Therefore, Claim 9 is in condition for allowance. Claims 10-21 have been canceled. Thus, Applicant

believes that all standing rejections to Claims 9-21 have been traversed or accommodated.

Further, Claim 22 has been added. Independent Claim 22 includes the subject matter of independent Claim 9 and subject matter from Claim 15 which the office action indicates as allowable. More specifically, "wherein the reflector is a planar member which is not coplanar or parallel with a plane of its rotation by the armature, which plane of rotation is generally normal to the path of the radiant energy. Thus, applicant believes new Claim 22 is also allowable.

As directed by this amended, pending Claims 1-9 and newly added Claim 22 are believed to be in condition for allowance. Thus, Applicant believes all grounds of rejection and/or objection are traversed or accommodated, and favorable reconsideration and allowance is respectfully requested.

The Examiner is encouraged to contact the undersigned attorney to resolve any other matters which remain to be resolved by an Examiner's amendment where possible. The Examiner is hereby authorized to debit deposit account number 50-1752, to cover any additional fees which may be required although Applicant believes that no fees are due at this time.

Respectfully submitted,



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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS

7. [11] (Amended) A shutter as in Claim 1, wherein:

when the reflector is in its first or second position, the current signal-applying circuit applies a holding current to the solenoid so that absent the applying means applying a second or first shaped pulse to the solenoid, the reflector remains in its extant position.

8. [12] (Amended) A fast mechanical shutter for selectively (i) intercepting and deflecting, and (ii) permitting the passage of, high-power radiant emissions, comprising:

a rotary bi-directional actuator having a rotatable output member which is rapidly rotatable between a first position and a second position by respective first and second shaped current signals applied to the actuator;

a radiant energy reflector that is carried by the output member, which, in the second position of the output member, resides out of the path of, and permits the passage of, the radiant emissions, and which in other than the second position of the armature, partially or wholly intercepts and reflects the radiant emissions;

a radiant emissions absorber positioned to receive the radiant emissions reflected from the reflector;

circuitry for applying a selected shaped current signal to the actuator to move the reflector to a selected position;

first sensing facilities for monitoring the actual position of the reflector and for producing a first error signal if the selected position and the actual position do not match;

second sensing facilities for measuring the temperature of the actuator and for producing a second error signal if the temperature exceeds a predetermined limit; and

first facilities for producing a fault signal in response to receipt of an error signal from the first and second sensing facilities.

9. [13] (Amended) An actuator for moving a mechanical shutter between a first position, whereat the shutter blocks the passage of a beam of radiant energy, and a second position, whereat the shutter permits the passage of the beam, which comprises:

an electrically operable bi-directional actuator, an [output member] armature of which is selectively movable into a first position or a second position for carrying the shutter into its first or second positions; and

a circuit for selectively, positively forcing and driving the armature into either of its positions, whereat the armature remains unless and until the armature is positively forced and driven into its other position, wherein the circuit produces a first shaped current signal, which rapidly moves the shutter into its first position if it is not presently thereat and holds the shutter in its first position if it is presently thereat, and a second shaped current signal, which rapidly moves the shutter into its second position if it is not presently thereat, and holds the shutter in its second position if it is presently thereat; and

facilities for selectively shaping and determining the start time and duration of, the current signals to selectively set when the shutter begins to move from one position to the other, the velocities at which the shutter moves, the acceleration and deceleration of the shutter, and the position of the shutter during its movement, wherein the shutter is normally in its first position; and the circuit produces in rapid order the second shaped current signal and the first shaped current signal, the shaping facilities determining the time between the start of the second current signal and the end of the first current signal, such time being the length of time the shutter permits the radiant energy to pass; and wherein

during a first portion of the shutter movement from one position to the other, the shutter is accelerated to a predetermined maximum velocity, then held at that maximum velocity for a predetermined length of time, then decelerated at a predetermined rate, then stopped and held at the other position; wherein the shutter is a dielectric member which is an efficient reflector at the wavelength of the radiant energy; and

in the first position of the shutter, the radiant energy is blocked and is reflected by the shutter away from the path taken to reach the shutter; and

the reflector is a planar member which is not coplanar or parallel with a plane of its rotation by the armature, which plane of rotation is generally normal to the path of the radiant energy, so that in its first position, the reflector intercepts the radiant energy beam and reflects the beam angularly away from the path thereof.

Claims 10-21 (Canceled).

22. (New) An actuator for moving a mechanical shutter between a first position, whereat the shutter blocks the passage of a beam of radiant energy, and a second position, whereat the shutter permits the passage of the beam, which comprises:

an electrically operable bi-directional actuator, an armature of which is selectively movable into a first position or a second position for carrying the shutter into its first or second positions; and

a circuit for selectively, positively forcing and driving the armature into either of its positions, whereat the armature remains unless and until the armature is positively forced and driven into its other position; and

the shutter is a dielectric member which is an efficient reflector at the wavelength of the radiant energy; wherein the reflector is a planar member which is not coplanar or parallel with a plane of its rotation by the armature, which plane of rotation is generally normal to the path of the radiant energy, so that in its first position, the reflector intercepts the radiant energy beam and reflects the beam angularly away from the path thereof.